

February 14, 2005

LICENSEE: Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc.

FACILITY: Vermont Yankee Nuclear Power Station

SUBJECT: SUMMARY OF SEPTEMBER 29, 2004, MEETING WITH ENTERGY ON
STEAM DRYER ANALYSIS FOR VERMONT YANKEE NUCLEAR POWER
STATION (TAC NO. MC0761)

On September 29, 2004, a Category 1 meeting was held between the Nuclear Regulatory Commission (NRC) and representatives of Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. (Entergy or the licensee) at NRC Headquarters, One White Flint North 11555 Rockville Pike, Rockville, Maryland.

The purpose of the meeting was to discuss the Vermont Yankee Nuclear Power Station (VYNPS) steam dryer analysis. This analysis is being used to support Entergy's license amendment request for a 20% power uprate at VYNPS. The extended power uprate (EPU) request was submitted by Entergy to the NRC on September 10, 2003.

This meeting was a followup to meetings between the NRC and Entergy which were held on July 21 and July 22, 2004. The July meetings focused on the steam dryer analysis performed by General Electric Nuclear Energy (GENE) for Entergy. A meeting summary for those meetings was issued on September 2, 2004. At the July meetings, Entergy noted that they were also developing a plant-specific acoustic circuit analysis model for use in validating the GE analysis. The primary purpose of this meeting was to discuss the plant-specific program and the program results.

A portion of the meeting was closed to the public in order to discuss proprietary information associated with the steam dryer analysis. The list of attendees for the meeting is provided as Attachment 1. The slides used by Entergy and Entergy's contractors contained proprietary information. A non-proprietary version of the slides was provided to the NRC by Entergy's letter BVEY 04-113 dated October 7, 2004, "Technical Specification Proposed Change No. 263 - Supplement No. 20, Extended Power Uprate - Meeting on Steam Dryer Analysis". A copy of those slides is included as Attachment 2.

Open Portion of Meeting

Mr. Richard Ennis, Project Manager for VYNPS in the NRC's Office of Nuclear Reactor Regulation (NRR) Division of Licensing Project Management (DLPM), provided introductory remarks.

Mr. John Dreyfuss, Entergy's Director of Engineering at VYNPS, discussed the information contained on slides 1 through 6. Mr. Dreyfuss acknowledged that use of a generic steam dryer load definition is problematic and, therefore, a plant-specific load definition is being developed for VYNPS.

Mr. Craig Nichols, Entergy's VYNPS power uprate Project Manager, discussed the information contained on slides 7 through 17. Mr. Nichols noted that Entergy's contractor, Continuum Dynamics, Inc. (CDI) has developed an acoustic circuit model for determination of the plant-specific loads on the VYNPS steam dryer. In addition, another Entergy contractor, Fluent, has developed a computational fluid dynamics (CFD) plant-specific model for the VYNPS steam dryer and reactor vessel to assess the impact of vortex shedding. Mr. Nichols also briefly discussed the power ascension test plan that would be used for monitoring plant parameters to assess performance of the steam dryer during plant startup and operation at the proposed EPU power levels.

Members of the public were in attendance. There were no comments or questions from the public and no Public Meeting Feedback forms were received by the NRC staff.

Closed Portion of Meeting

Mr. Brian Hobbs, VYNPS Engineering Supervisor, discussed the information contained on slide 18.

Mr. Don Johnson, VYNPS Design Engineer, discussed the information contained on slides 19 through 22.

Mr. Brian Hobbs discussed the information contained on slide 23.

Mr. Pedro Perez, VYNPS Senior Engineer, discussed the information on slides 23 through 34.

Mr. Alan Bilanin, President of CDI, discussed the information contained on slides 35 through 69.

Mr. Pedro Perez discussed the information contained on slides 73 through 85.

Mr. Dan Pappone of GENE discussed the information contained on slides 70 through 72.

Mr. Brian Hobbs discussed the information contained on slides 86 through 99.

Mr. Cornelius Holden, the NRC's Director of Project Directorate I in NRR/DLPM, provided the following NRC initial impressions regarding the steam dryer acoustic circuit model analysis:

- The NRC staff felt that the meeting was helpful in understanding the acoustic circuit model analysis. The NRC staff is looking for Entergy to put the information regarding the analysis on the docket.
- The NRC staff expectation is that the acoustic circuit model analysis will be bench-marked and would be able to accurately predict the loads on an actual dryer and/or test facility.
- The NRC staff needs information to be submitted to address out-of-phase loading on the steam dryer.
- The NRC staff felt that additional information needs to be provided regarding actions to be taken by the licensee if an increase in moisture carryover is observed.

- The NRC staff questioned the validity of the damping value being used for development of the response spectra in the VYNPS steam dryer analysis.

Mr. John Dreyfuss provided the following summary for Entergy:

- Entergy plans to docket the acoustic circuit model analysis information within the next two weeks.
- Entergy will submit non-proprietary and proprietary versions of the slides used during the meeting via a letter to the NRC.
- Entergy does not plan on docketing the CFD analysis being performed by Fluent; however, the licensee will consider whether it should be docketed.

Please direct any inquiries concerning this meeting to me. I can be reached at (301) 415-1420, or rxen@nrc.gov.

Richard B. Ennis, Senior Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-271

Attachments:

1. List of Attendees
2. Slides

cc w/atts: See next page

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/RA/

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Attachment 1: ML

Attachment 2: ML042890417

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